

Replacement Paragraphs

92 [0007] (Amended) During photolithography, problems arise because high resolution submicrometer images in photoresist require shallow depth of focus during exposure, but thick photoresist patterns are required because of the poor etch rate between the photoresist and the underlying semiconductor layer. Additional problems occur because of the uncontrolled bake during the plasma etch processing. During this process, the substrate is exposed to ion and electron bombardment, UV light, X-rays, and scattered radiations. As a consequence, irregular topographies, distorted images and CD loss occurs during the exposure of the photoresist layer as shown in Figs. 1-2. These figures illustrate a typical plasma etch of a silicon substrate 40 having an oxide layer 42 deposited thereon. Contact holes 12, 14, 16 are etched into wafer 10. The contact holes 12, 14, 16 have an upper surface 38 and a lower surface 36. Due, in part, to the thin DUV resist and the uncontrolled bake during the etching process, discontinuities 18, 20, 22, 24, 26, 28, 30 and 46 are formed as shown for contact hole 12. The discontinuities 18, 20, 22, 24, 26, 28, 30, 46 occur in the contact hole 12 as a result of the plasma etch attacking the side walls of the contact hole 12. It should be understood that the shape and number of the discontinuities will vary depending upon the specific etching process parameters as well as the material which is being etched. The discontinuities may form which have a first surface 32 and a second surface 34 in the wall 44 of the contact hole 12. In addition, contact holes 12, 14, 16 are formed in a frusto-conical shape instead of a cylindrical shape when formed in the oxide layer 42.

[0008] (Amended) When two discontinuities 22, 46 are formed in adjacent contact holes 12, 14 and become aligned with one another, the integrated circuit suffers a loss in critical dimension (CD loss). CD loss is a critical component of integrated circuit design, especially in the sub-quarter micron regime. Additionally, when the contact holes 12, 14, 16 are formed in a frusto-conical shape instead of the desired cylindrical shape,



Q4

[illegible]